

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

Form PTO-1449 (Modified)  
(Use several sheets if necessary)

COMPLETE IF KNOWN

Application Number	09/781,046
Confirmation Number	9275
Filing Date	February 8/2001
First Named Inventor	Kangseng Wang
Group Art Unit	1632
Examiner Name	Thaian N. Ton
Attorney Docket No	54269.8002.US01

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**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No.	U.S. Patent or Application		Name of Patentee or Inventor of Cited Document	Date of Publication or Filing Date of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		NUMBER	Kind Code (if known)			
TNT	AA	US 2002/0004240 A1		Wang	1/10/02	
TNT	AB	5,428,132		Hirsch et al.	6/27/95	
TNT	AC	5,521,291		Curiel et al.	5/28/96	

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		Office	NUMBER	Kind Code (if known)			
TNT	AD	WO	01/73094 A2		BIOAGRI CORPORATION	10/4/01	
TNT	AE	WO	00/29602		Cedars-Sinai Medical Center	5/25/00	
TNT	AF	WO	00/08924		Perry et al.	2/24/00	
TNT	AG	EP	0 846 772 A1		HOECHST AKTIENGESELLSCHAFT	10/6/98	

**OTHER PRIOR ART-NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume issue number(s), publisher, city and/or country where published.	T
TNT	AH	International Search Report for PCT International Application No. PCT/US02/02895, dated 10/7/03, 7 pages.	
TNT	AI	International Search Report for PCT International Application No. PCT/US02/40492, dated 6/5/03, 4 pages.	
TNT	AJ	International Search Report for PCT International Application No. PCT/US01/07018, dated 12/3/02, 5 pages.	
TNT	AK	Anwer, Khursheed et al., "Targeted Gene Delivery: A Two-Pronged Approach", <u>Critical Reviews in Therapeutic Drug Carrier Systems</u> , 17(4), pp. 377-424 (2000)	

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TNT	AL	Bookbinder, L.H. et al., "Tissue- and Species-Specific Express of sp56, a Mouse Sperm Fertilization Protein, <u>Science</u> , vol. 269, pp. 86-89 (1995)	
TNT	AM	Burks, D.J. et al., "Interaction of a Tyrosine Kinase from Human Sperm with the Zona Pellucida at Fertilization", <u>Science</u> , vol. 269, pp. 83-86 (1995)	
TNT	AN	Chang, Keejong et al., "Effective generation of transgenic pigs and mice by linker based sperm-mediated gene transfer", <u>BMC Biotechnology</u> 2002, 2:5, <a href="http://www.biomedcentral.com/1472-6750/2/5">http://www.biomedcentral.com/1472-6750/2/5</a>	
TNT	AO	Cheng, Alice et al., "Sperm-Egg Recognition in the Mouse: Characterization of sp56, A Sperm Protein Having Specific Affinity for ZP3", <u>The Journal of Cell Biology</u> , vol. 125, no. 4, pp. 867-878 (1994)	
TNT	AP	Cornwall, Gail A. et al., "Inhibition of the Mouse Sperm Surface $\alpha$ -D-Mannosidase Inhibits Sperm-Egg Binding in Vitro, <u>Biology of Reproduction</u> , vol. 44, no. 5, pp. 913-921 (1991)	
TNT	AQ	FUSI, F.M., "In vitro production of human anti-sperm antibodies: effect of an oligoclonal antibody (F6) on sperm-egg interaction," <u>Journal of Reproductive Immunology</u> , Volume 29, No. 2, 1995, pp. 135-147.	
TNT	AR	Gao, Zeren et al., "Species Diversity in the Structure of Zonadhesin, a Sperm-specific Membrane Protein Containing Multiple Cell Adhesion Molecule-like Domains", <u>The Journal of Biological Chemistry</u> , vol. 273, no. 6, pp. 3415-3421 (1998)	
TNT	AS	Gougoulidis, Tiki et al., "Inhibition of Bovine Sperm-Oocyte Fusion by the Carbohydrate GalNAc", <u>Molecular Reproduction and Development</u> , vol. 54, no. 2, pp. 179-185 (1999)	
TNT	AT	Hardy, Daniel M. et al., "A Sperm Membrane Protein That Binds in a Species-specific Manner to the Egg Extracellular Matrix Is Homologous to von Willebrand Factor", <u>The Journal of Biological Chemistry</u> , vol. 270, no. 44, pp. 26025-26028 (1995)	
TNT	AU	Kadam, Arjun L. et al., "Fertilization antigen (FA-1) completely blocks human sperm binding to human zona pellucida: FA-1 antigen may be a sperm receptor for zona pellucida in humans", <u>Journal of Reproductive Immunology</u> , vol. 29, no. 1, pp. 19-30 (1995)	
TNT	AV	Kalab, Petr et al., "p95, the Major Phosphotyrosine-containing Protein in Mouse Spermatozoa, Is a Hexokinase with Unique Properties", <u>The Journal of Biological Chemistry</u> , vol. 269, no. 5, pp. 3810-3817 (1994)	
TNT	AW	Kameda, Kinu et al., "Comparative Studies of the Antigens Recognized by Sperm-Immobilizing Monoclonal Antibodies", <u>Biology of Reproduction</u> , vol. 46, pp. 349-357 (1992)	
Cited by Examiner	AX	Kim et al., "Effects of Experimentally Generated Bull Antisperm Antibodies on in Vitro Fertilization." <u>Biology of Reproduction</u> . 60: 1285-1291, 1999.	
TNT	AY	Lacy, H. Marie et al., "Sperm protein 17 is expressed on normal and malignant lymphocytes and promotes heparan sulfate-mediated cell-cell adhesion", <u>Blood</u> , vol. 98, no. 7, pp. 2160-2165 (2001)	

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TNT	AZ	Lu, Qingxian et al., "Sperm from $\beta$ 1,4-galactosyltransferase-null mice are refractory to ZP3-induced acrosome reactions and penetrate the zona pellucida poorly", <u>Development</u> , vol. 124, pp. 4121-4131 (1997)	
TNT	BA	Miller, David J. et al., "Complementarity between sperm surface $\beta$ -1,4-galactosyl-transferase and egg-coat ZP3 mediates sperm-egg binding", <u>Nature</u> , vol. 357, no. 6379, pp. 589-593 (1992)	
TNT	BB	Morawatz, R., WRITTEN OPINION, issued on June 27, 2002 by PTO regarding International Application No. PCT/US01/07018, which claims the priority to U.S. Patent Appl. Serial No. 09/537,861, 9 pages.	
TNT	BC	Mori, Kazumasa et al., "Blocking of human fertilization by carbohydrates", <u>Human Reproduction</u> , vol 8, no. 10, pp. 1729-1732 (1993)	
Cited by Examiner	BD	Nakamura et al., "Identification and Characterization of a Sperm Peptide Antigen Recognized by a Monoclonal Antisperm Autoantibody Derived from a Vasectomized Mouse," <u>Biochemical and Biophysical Research Communications</u> . 205: 1503-1509, 1994.	
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TNT	BK	Töpfer-Petersen E. et al., "Spermadhesins: A new protein family. Facts, hypotheses and perspectives", <u>Andrologia</u> , vol. 30, no. 4-5, pp. 217-224 (1998)	
TNT	BL	Töpfer-Petersen E. et al., "Sperm-associated protein candidates for primary zona pellucida-binding molecules: structure-function correlations of boar spermadhesins", <u>Journal of Reproduction and Fertility Supplement</u> 50, pp. 55-61 (1996) <i>Abstract only</i>	

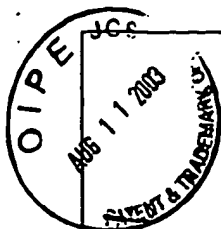
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TNT	BM	Uherek, Christoph et al., "DNA-carrier proteins for targeted gene delivery", <u>Advanced Drug Delivery Reviews</u> , 44(2-3), pp. 153-166 (2000)	
TNT	BN	Varga, Csanad M. et al., "Receptor-Mediated Targeting of Gene Delivery Vectors: Insights from Molecular Mechanisms for Improved Vehicle Design", <u>Biotechnology and Bioengineering</u> , vol. 70, no. 6, pp. 593-605 (2000)	
TNT	BO	Yamasaki, Noriyuki et al., "Expression of the Rabbit Sperm Protein Sp17 in Cos Cells and Interaction of Recombinant Sp17 With the Rabbit Zona Pellucida", <u>Molecular Reproduction and Development</u> , vol 40, no. 1, pp. 48-55 (1995)	
cited by Examiner	BR	Yan et al., "Characterization of Sperm Agglutinating Monoclonal Antibody and Purification of the Human Sperm Antigen," 1988, <u>Int. J. Fertil.</u> 31: 77-85.	
TNT	BQ	Yan, Yuan Chang et al., "Characterization of cDNA encoding a human sperm membrane protein related to A4 amyloid protein", <u>Proc. Natl. Acad. Sci.</u> , vol. 87, pp. 2405-2408 (1990)	
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TNT	BS	Zhu, Xiaolong et al., "Fertilization antigen-1: cDNA cloning, testis-specific expression, and immunocontraceptive effects", <u>Proceedings of the National Academy of Sciences</u> , vol. 94, no. 9, pp. 4704-4709 (1997)	

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